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ABSTRACT

Three types of processes occur in language learning, each intricately connected with the others. Social processes are the steps by which learners and target language speakers create a social situation in which target language communication is possible and desired. Linguistic processes are the ways in which assumptions held by target language speakers cause them to select, modify, and support the linguistic data produced for the sake of the learners. Cognitive processes involve the analytical procedures and operations taking place in learners' heads and ultimately resulting in acquisition of the language, and can be general or specialized for language learning. Both types of cognitive processes are involved in language learning, but in first language learning the specialized processes dominate, and in second language learning the general processes are more heavily involved. These processes work or do not work in relation to variation in three components of language learning: the learners, the target language speakers who provide access to the language, and the social setting that brings them together frequently enough for learning to occur. Much of the variability in language learning can be attributed to differences among learners in the application of cognitive mechanisms and ability, but can also be related to differences in the other two components. (MSE)

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Second Language Learning in Children: A Proposed Model

Lily Wong Fillmore

In this paper I discuss a view of language learning that has evolved over a decade of research on the learning of English by children for whom English is a second language. My goals in these studies have been to understand the nature of the process and to discover what causes the variation that exists among learners in respect to the ease with which they learn the new language. I have been particularly interested in the interplay of cognitive and social factors with situational and linguistic factors in the settings in which learning takes place. In all, I have studied the development of English in well over 200 five- to eleven-year-old children, some of them for as long as three years.

A couple of years ago Merrill Swain and I (Wong Fillmore and Swain 1984) decided to put what she and her colleagues had been learning in their studies of second language learning in Canada together with what I and other American researchers had learned in studies of children over the previous decade. In the end we arrived at a fairly satisfying formulation of what is involved in second language learning. It is Merrill's and my attempt to integrate what we know about second language learning into a model that can be tested. The model identifies the critical components and processes in language acquisition; it allows us to account for age differences and individual differences; it suggests ways in which second language learning may differ from first language learning; it helps explain why it is that in some situations people fail to learn a second language altogether.

The model is a complex one and is difficult to talk about in purely abstract terms. It is easier to show how its pieces fit together through discussions of situations that are familiar to all of us. Typically, second language learners in this society are members of immigrant families. The family speaks a language other than English and continues to use it in the home and in the immigrant community. At the same time, the family members have a genuine need to learn English and are motivated to do so because it offers them access to the social and economic life of the community they are joining. Nonetheless, learning this new language is

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an enormously complex task consisting of figuring out and learning the full system of linguistic, social, and pragmatic rules that govern the language behavior of the speech community.

Despite the complexity of the task most individuals are up to it. People, no matter what their background, do not come to the task of learning a second language empty-handed; they are guided by a prior social, linguistic, and general world knowledge. Because they already know one language, they know what sorts of things people talk about. They have a fairly good idea of what they will have to learn to do and say in English. The immigrant family is in a perfect situation for language learning since it is living in a society that provides generous exposure to those who speak the language natively; the speech behavior of these people will allow the learners to figure out how the language works.

The language learning situation I have just outlined comprises the necessary ingredients for second language learning. There are three major components: (1) *learners* who realize that they need to learn the target language (TL) and are motivated to do so; (2) *speakers of the target language* who know it well enough to provide the learners with access to the language and the help the learners need for learning it; and (3) a *social setting* that brings learners and TL speakers into frequent enough contact to make language learning possible. All three components are necessary. If any of them is dysfunctional, language learning will be difficult, or impossible. When all three are ideal, language learning is assured. Each of them can vary in a great many ways, however, and some of this variance can critically affect the processes by which language is learned. These then are the three essential components of the model.

Language Learning Processes

Three types of processes come into play in language learning, each of them intricately connected with the others. These can be described as (1) social, (2) linguistic, and (3) cognitive. I will discuss each in turn.

Social processes. By social processes I have in mind the steps by which learners and TL speakers create a social setting in which communication by means of the target language is possible and desired. Social processes figure in language learning in the following way. Regular social contacts with people who speak the TL allow the learners to observe the language as it is used by TL speakers in natural communication while providing an incentive for learning. In the course of these contacts, learners have to make the speakers aware of their special linguistic needs and get the speakers to make whatever accommodations and adjustments are necessary for successful communication—a difficult task. In interactions in which the TL is used, the learners have to participate at some level, since the quality of their participation plays a crucial role in getting

speakers to use the language in the special ways that make the speech samples from these contacts usable as language learning data. When TL speakers and learners interact, both sides have to cooperate for communication to take place. The learners make use of their social knowledge to figure out what people might be saying, given the social situation. The learners assume that the speech used by the speakers is relevant to the immediate situation; if the TL speakers are being cooperative, this will indeed be true. Those situations that promote frequent contacts are the best, especially if the contacts last long enough to give learners ample opportunity to observe people using the language for a variety of communicative purposes. Those which also permit learners to engage in the frequent use of the language with speakers are even better.

Linguistic processes. By linguistic processes I have in mind the ways in which assumptions held by the speakers of the target language cause the speakers to select, modify, and support the linguistic data that get produced for the sake of the learners. On the learners' side there are assumptions about the way language works that cause the learners to interpret the linguistic data they have to work with. Linguistic processes figure in language acquisition in several crucial ways. The first way intersects with the social processes I have just described, and in a sense, involves linguistic processes principally when looked at from the perspective of the speakers of the target language as they interact with the learners. Basically, what learners have to get out of these contacts is linguistic knowledge—the phonological, lexical, grammatical, pragmatic, and sociolinguistic knowledge that eventually allows learners to speak and comprehend the new language in a full range of social and communicative situations. What it takes to acquire this kind of knowledge is exposure to linguistic data in the form of situationally anchored speech produced by speakers of the language in the context of social interaction that involves the learners in one way or another. These linguistic data, together with the supporting social context in which the data are anchored, constitute what researchers studying first and second language acquisition refer to as *input*—the materials on which learners can base their acquisition of the language.

Language produced by speakers in social contacts with learners can serve as input when the speech has been produced with the learners' special needs in mind. It is not ordinary language, but language which has been selected for content and modified in form and presentation. It tends to be structurally simpler, more redundant and repetitive, and as Michael Long (1981) has suggested, it is characterized by greater structural regularity than is found in ordinary usage. The modifications that speakers make in this kind of language are based partly on notions about what nonproficient speakers would find difficult to understand and what they would find easy. Studies of the phenomenon of "foreign talk" in-

dicate that modifications made by speakers on the basis of *a priori* beliefs about the relative difficulty of linguistic forms are not always helpful to learners, and can, in fact, mislead the learners as to what the target forms are like. More useful accommodations are based on actual feedback provided by the learners as to whether or not they understand what is being said to them.

This leads to the second way in which linguistic processes appear to figure in language acquisition, a way that intersects with cognitive processes. Looked at from the learners' perspective, the basic problem for the learner is to make sense of what people might be saying given the social situation at hand. This might seem like an impossible task, but second language learners have some special resources available to help them in this process. Because learners already have a language, they know about such linguistic categories as lexical item, clause, and phrase. This awareness of grammatical form and structure will predispose them to look for equivalent properties in the new language data.

Similarly, through the experiences they have had in their first language, learners are generally knowledgeable about the speech acts and functions that can be performed linguistically. They know about the uses of declarative and interrogative structures, about affirmation and negation, about expressions of certainty and uncertainty in speech, and the like. This kind of prior linguistic knowledge and experience will lead second language learners to seek and to discover means for accomplishing the same functions in the new language. The assumption that forms will be found in the L_2 that are functionally equivalent to L_1 forms can lead learners to acquire the forms more efficiently than they might otherwise. At the same time, however, it could interfere with learning, since this assumption sometimes leads learners to draw largely unwarranted conclusions that L_2 forms are functionally and structurally *identical* to L_1 forms and usages. Nevertheless, the net result is positive. By applying the knowledge they have of what people are likely to say in various social situations to what they know are possible forms, patterns, and functions in language, learners are more or less able to give meaningful interpretations to the language they hear, and thus, to discover eventually the principles that govern the structure and use of the language itself.

Cognitive processes. The third type of process in language learning includes those that can be described as cognitive. In a sense the cognitive processes in acquisition are the central ones. These involve the analytical procedures and operations that take place in the heads of learners and ultimately result in the acquisition of the language. Let us consider what the cognitive task involves. The primary linguistic data that learners have available to them as input for their analyses consist of speech samples produced by speakers of the target language during social contacts in

which the learners are themselves participants, as I have argued. What learners must do with these data is discover the system of rules the speakers of the language are following, synthesize this knowledge into a grammar, and then make it their own by internalizing it. That in capsule form is what the cognitive task is for any language learner.

Figuring out how the speakers of the target language are using the noises they produce to represent meaning is the first step. This involves discovering how the speech serving as input segments; that is, figuring out where one thing ends and another begins is critical to the procedure. Once the learners know what the units are, they can figure out how the segments are used to represent meanings, how such units can be assembled structurally to communicate more complex ideas and thoughts, and finally, what principles the speakers of the language use to achieve their communicative goals and intentions. Learners apply a host of cognitive strategies and skills to deal with the task at hand: they have to make use of associative skills, memory, social knowledge, and inferential skills in trying to figure out what people are talking about. They use whatever analytical skills they have to figure out relationships between forms, functions, and meanings. They have to make use of memory, pattern recognition, induction, categorization, generalization, inference, and the like to figure out the structural principles by which the forms of the language can be combined and meanings modified by changes and deletions.

Such cognitive tools can be described as general cognitive mechanisms. Some second language researchers would object to this claim. According to the prevailing linguistic theory, a special cognitive mechanism is responsible for language acquisition. This mechanism, which is referred to as the language acquisition device (LAD), is said to operate in a quite different way from ordinary cognitive processes. One of the major arguments for the cognitive processes involved in acquisition being special ones is that many of the features of the grammar that learners eventually acquire cannot simply be induced from the linguistic data that are available to them. By this view of acquisition, what I have described as social and linguistic processes are regarded as incidental or peripheral phenomena. If they figure at all, they play only trivial roles; everything that is really important in language learning has to do with the working of LAD. Adherents of the LAD proposal have argued that no matter what other kind of information or help is available to learners, the primary data learners have to work with are samples of speech consisting of phonological signals that are not cognitively penetrable; that is, they are not tractable to the ordinary manipulations or analytical procedures available to the children. The only explanation for language acquisition acceptable to people who hold this view is that language rules are somehow innately available to the acquisition device in some abstract

sense. To trigger the discovery of these rules, the device only requires exposure to data in which language rules figure.

That may be the case in first language learning. Nearly everyone does in fact end up learning a first language, despite huge differences in general intellectual endowment and early language experiences—no matter how difficult or complex the target language. This does not seem to be the case in languages other than the first, in which great differences can be found in language learning ability across individuals. What I believe to be the case is this: language learning involves two kinds of cognitive processes, both those which are specialized for language learning (i.e., of the LAD type) and those which are involved in more general intellectual functioning. In first language learning, mechanisms of the first type figure more heavily than those of the second type. In fact, the cognitive skills of the second type are just developing while children are acquiring their first languages.

By the time individuals are likely to find themselves learning a second language, however, such general cognitive skills are well developed. They figure in whatever cognitive tasks an individual encounters, including those involved in learning a new language. The LAD type mechanism that participates in first language learning may also play a role in second language learning. In fact, I would argue that both types of cognitive mechanisms are involved in language learning, whether the learner is dealing with a first or a second language. The degree of involvement of these two types of mechanisms is *reversed*, however, for second language learning. While specialized language learning mechanisms figure in an important way too, general cognitive mechanisms are more heavily involved. This, in fact, may be a crucial difference between first and second language learning.

There are two kinds of evidence for this conclusion. One consists of observations of strategies that children appear to follow when they tackle a second language. The other relates to observations of individual variation in the learning of second languages. The cognitive strategies and skills that I have described in this paper involve the use of general cognitive mechanisms rather than specialized ones. The cognitive work learners engage in results in figuring out and acquiring rules, principles, and patterns, yet such materials do not necessarily add up to a grammar. At some point, the knowledge that has been gained through the workings of general cognitive mechanisms needs to be consolidated and assembled, in a manner of speaking, into a competence grammar. This, I would argue, is where the language-specific cognitive mechanisms, or LAD, come into play; through these processes what the learner has sorted out becomes synthesized into a real competence grammar, and perhaps many of the details of the grammar get refined here as well. This last part, I admit, is speculative; there is no way of proving or disproving it.

Variation in Components

These then are the processes that figure in language learning. We can now consider how they work, or do not work, in relation to variation in the three components that were described earlier: the learner, the speakers of the target language, and the social setting. Let us return to the example of children of immigrant families. These children come into contact with speakers of the TL in school, which is the best possible social setting for language learning.

In such a setting the social conditions for language learning outlined earlier are easily met. The learners are in constant social contact with speakers of the target language. The speakers (the teacher especially, but classmates as well) have ample reason to speak to the learners in this setting, and the classmates are generally inclined to do so in a manner that takes into account the fact that the learners do not know the language. Through observation the learners must then learn *how to do what the speakers can do* by making use of the general cognitive strategies and the social and linguistic knowledge at their command.

This is easy enough for some learners, but not for all. Let us consider the question of variation in second language learning, since this is what leads me to argue that general rather than specialized cognitive processes are most heavily involved in second language learning and that social and linguistic processes play the roles I have described. One of the most striking points is the relatively minor variation we find among first language learners compared to what is seen in second language acquisition, even among relatively young children. Differences of up to five years can be found in the time children take to get a working command of a new language. Learners differ enormously in how easily and completely they master the grammatical details and intricacies of a second language.

I believe that a substantial portion of this variation is due precisely to the involvement of cognitive mechanisms of the kind that have been identified here as figuring most in second language learning. Individuals apparently do not vary in having an innate capacity to learn a language. If this mechanism is as heavily involved in the learning of second language as it is in first languages, then we would not expect to find any more variation in second language learning then we do in first language learning. But, as I have tried to show, the kind of cognitive processes that are most critical in second language learning are the ones that relate to general cognitive abilities. We know that there are considerable differences across individuals in their endowments of these abilities. I am not necessarily referring here to all those abilities that constitute general intelligence, but rather to those that figure especially in language learning: verbal memory, auditory perception, pattern recognition, categorization, and so forth. Some of them—for example, generalization and

association—are obviously associated with those abilities that are directly related to general intelligence, but most of the ones I mentioned are only incidentally related. The point to be made here is that much of the variability found in second language learning can be traced to differences found among learners in the application of these general mechanisms and abilities. Learners who have poor auditory memory will have a difficult time remembering the things they hear in a new language. If they cannot remember what they hear, they will not find it easy to figure things out or to use them. Those who are poor in auditory perception will have difficulty discriminating between the sounds of the new language, and hence will be poor in making sense of what they hear and at reproducing anything. Learners who are poor in pattern recognition will have a difficult time seeing the patterns they must eventually discover in the new language. Moreover, it should be noted that variation in language learning along the cognitive dimension is not just related to differences in learner endowments of cognitive abilities. These differences are also affected by other learner variables.

Age is an obvious one. Recent research has shown that older learners may be relatively better and quicker at learning certain aspects of second languages than younger learners. Research seems to indicate that older learners are better because they have better developed learning strategies and cognitive abilities; yet the cognitive advantages that come with age and experience may not always result in better language learning for older learners. Personality is another type of variable that can interact with age and with cognitive factors to influence language learning. Personal characteristics that may not interfere with language learning in young children can become major problems later in life. One personality characteristic in particular that can increase with age is mental rigidity, a trait which varies considerably from person to person. The unwillingness or inability to accommodate new information or the unknown can make it extremely difficult for learners to handle many aspects of the learning task we have outlined.

Another personality or cognitive style characteristic that can greatly affect language learning, and that varies greatly from learner to learner, has to do with risk taking. Some learners find it difficult to act upon the things they have learned through guessing and may be unwilling to do much guessing at all. They are either afraid of being wrong or of appearing foolish, or they are unable to draw generalizations from the relationships they do see and to test them out.

Observations of variation in learners also provide evidence of the way other types of processes figure in acquisition. In fact, this is what convinces us that social and linguistic processes are also crucially involved in second language acquisition. Consider the effects of differences in the social situations in which learners are to acquire the new language. Social

settings can differ in how much or what type of contact with speakers is provided and hence, how much opportunity learners find to learn the language. For example, some settings provide learners with few opportunities to get close enough to speakers of the language to do any good, or the kinds of contacts the learners get are inadequate for language learning purposes.

Situations for language learning can also differ considerably in the extent to which learners themselves have to play a role in getting the kind of social contact needed for language learning and in the role actual interaction between speakers and learners plays. It has long been assumed that direct interaction between learners and speakers is necessary in order for language learning to take place. But in our research in classrooms, we have found that some learners can in fact pick up a language essentially by observing their teachers and peers with very little direct interaction, while in other situations this is not possible. Is interaction necessary?

What is essential is that learners have access to language that is appropriately modified for them and is used in ways that allow learners to discover its formal and pragmatic properties. There are classrooms, for example, where the English used by teachers for group instruction works so well as input that all of the language learners in the class profit from the experience, irrespective of the students' social inclination. This seems to work well enough, provided the learners are highly motivated and are attentive enough to learn by observation. In classrooms where the English used by the teacher does not work as input or in more unstructured situations, as in "open classrooms,"or on the playground where students cannot count on getting the free input provided by teachers in some classrooms, then interaction between learners and TL speakers is all important. Learners play a much greater role in getting the input they need for language learning.

In such situations, learner variables such as personality and social skills can play a substantial role in language learning. Those learners who find it easy or desirable to interact with speakers of the target language will get a lot more of the social contacts that are needed for language learning than do those who are not as interested or motivated or are less able to manage the kinds of social contacts that are needed for language learning. Variables such as personality, social style, social competence, motivation, and attitudes in both learners and speakers of the target language can also affect language learning.

What I have tried to show in this paper is how the parts of the model that has been proposed figure in the process of language learning, and how variation in the three components can crucially affect the outcome of the process. The model that has been discussed here is just a proposal,

however. We continue to work on it and to test it as we deal with the language learning data that we have collected over the years.

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